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(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) Machine for Washing of Carpets

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(73) Same as inventor

(30) (FI) 886022 1988/12/29

(57) 7 Claims

Notice: The specification contained herein as filed

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## ABSTRACT

Object for the invention is a machine for washing of carpets, to which machine belong a frame (1), inside the frame positioned rolls (2), supported by which the carpet (3) is arranged to be transported inside the machine, an inside the frame positioned, in the length direction of the rolls movable distributing unit (4) of the detergent fluid and the scavenging agent for spraying of the detergent fluid and the scavenging agent on the surface of the carpet and with the distributing unit connected hoses (5, 6) of the detergent fluid and the scavenging agent. The present inside the frame positioned distributing units are either expensive or undependable. In a machine in accordance with the invention the hoses (5, 6) are outside the frame from their one end connected with a transportation device (7) fastened on the frame, which is arranged to transfer the hoses and through the intermediary of the hoses the on their other end fastened distributing unit in regard of the rolls.

## MACHINE FOR WASHING OF CARPETS

Object for the invention is a machine for washing of carpets, to which machine belongs a frame, inside the frame placed rolls, supported on which the carpet is arranged to be transferred in the machine, an  
5 inside the frame positioned, in the length direction of the rolls movable distributing unit for detergent fluid and scavenging agent for spraying of the detergent fluid and the scavenging agent on the surface of the carpet and with the distributing unit connected  
10 hoses for the detergent fluid and the scavenging agent, which are led from the inside of the frame out.

In the presently known carpet washing machines the  
15 distributing unit for the detergent fluid and the scavenging agent are transferred in the direction of the rolls and with the nozzles of the distributing unit the detergent fluid and/or the scavenging agent are sprayed on the surface of the carpet. In the  
20 machines a separate source of power and a mechanism are needed for moving of the distributing unit. This moving mechanism is positioned inside the frame of the machine and forms in general a part of the distributing unit. The mechanism is inside the frame  
25 and subject to very humid conditions and it is either expensive or undependable. The drying devices are positioned after the rolls and arranged to blow dry air on the surfaces of the carpets. The dryers used in the present carpet washing machines are  
30 not efficient.

The purpose of the invention is to bring forth a machine for washing of carpets, in which machine the distributing unit of the detergent fluid and/or  
35 the scavenging agent is arranged to be moved by

a simple and to its costs favourable construction. Additionally, the aim with the invention is to bring forward a machine for washing of carpets, in which machine the drying device is simple to its structure and efficient. The goal of the invention is achieved  
5 with a machine for washing of carpets, which mainly is characterized by that, what has been presented in the part of claims.

10 In the machine in accordance with the invention the hoses of the detergent fluid and the scavenging agent are outside the machine from their one end connected with a transportation device fastened on the frame, which is arranged to transfer the  
15 hoses and through the intermediary of the hoses the on their other end connected distributing unit in regard of the rolls. The transportation device is positioned outside the frame and does not exist in humid conditions. The rolls are placed inside  
20 the frame. The hoses are taken advantage of simultaneously both for the transferring of the detergent fluid and the scavenging agent to the distributing unit as for the moving of the distributing unit. In the machine in accordance with the invention  
25 one advantage is also, that the hoses are always straight inside the frame, so that they are not bowed into sharp angles and break easily as they did in the previous machines.

30 In the following the invention will be explained more in detail by referring to the attached picture, in which  
figure 1 presents an embodiment of the machine for washing of carpets in accordance with the invention  
35 seen from the side in two different cut-throughs, figure 2 presents the machine in accordance with figure 1 seen from the gable, and

figure 3 presents the machine in accordance with the figure 1 seen from the gable with the gable cover opened.

5 In the embodiment in accordance with the figures 1-3 to the machine for washing of carpets belong a frame 1, inside the frame placed rolls 2, a distributing unit 4, hoses 5, 6, which have been led from the inside of the frame out, and an outside the  
10 frame placed transportation device 7. In this embodiment to the machine belong five rolls 2, out of which four have been arranged by pairs and the fifth has been placed in the middle of the roll pairs at a distance from these. In accordance with the  
15 figure 3 the carpet 3 is fed-in into the machine from the opening on the left side of the frame, transferred inside the machine supported by the rolls and fed-out through the opening 10 on the right side of the machine. The distributing unit  
20 4 for the detergent fluid and the scavenging agent is placed in this embodiment between the rolls and it is moved inside the frame supported by the rails 11 in the length direction of the rolls. On the distributing unit on its one end is connected  
25 the hose 5 transporting the detergent fluid and on the other end the hose 6 transporting the scavenging agent. To the distributing unit belong the nozzles 12, out of which the nozzles directed in one direction are connected with the detergent fluid hose and  
30 in the other direction directed nozzles are connected with the scavenging agent hose. The carpet lies bowed on the rolls, whereat the filaments of the part of the carpet on top of the rolls is open. The detergent fluid and the scavenging agent nozzles  
35 are aimed at the bowed spots and the detergent fluid and the scavenging agent can have an efficient influence on the carpet.

The detergent fluid hose 5 and the scavenging agent hose 6 are led from the inside of the frame out, supported on the supporting elements 9 fixed on the sides of the frame, which in this embodiment are wheels, and fastened from their one end on the transportation device 7, which is fixed movably on the frame. The hoses form herewith an endless looping, because their one end is fastened on the distributing unit and the other end is connected to the same transportation device. The length of the detergent fluid hose and the scavenging agent hose are mainly equal. To the machine belong an on top of the frame located, in the length direction of the rolls extending supporting bar 8, and the transportation device is fastened movably on this supporting bar. The transportation device is moved in regard of the supporting bar in an as such known manner, for instance with the help of a cylinder or a corresponding. The from the outside of the machine led transport hoses for the detergent fluid and the scavenging agent are connected with the transportation device and through the intermediary of this with the detergent fluid hose 5 and the scavenging agent hose 6.

When operating the machine the transportation device is transferred with the help of the source of power supported on the supporting bar. The detergent fluid hose and the scavenging agent hose are transferred along with the transportation device and also on their other end connected distributing unit is moving inside the frame simultaneously.

Between the rolls have been positioned belts 13 at a suitable distance from each other, supported on which the carpet is transferred inside the machine. Between the middle roll and the scavenging rolls have been placed guiding devices 14, which are arranged to transfer the positions of the belts in regard

of the carpet. Consequently then also the spot situated underneath the belt will be scavenged in an efficient way. After the scavenging rolls between the washing and the scavenging rolls have second guiding devices  
5 15 been positioned, which are arranged to transfer the belts back again. In an embodiment of the transportation device of the carpet a net is used.

In a second embodiment of the invention inside  
10 the frame above the roll in the middle has been placed a washing and scavenging device, the structure and function of which are corresponding to the unit described above. Hereat the carpet can be washed efficiently on both the sides.

15

A machine in accordance with the invention is particularly aimed for washing of non-woven mats. In one favourable embodiment of the invention to the machine belongs an outside the frame placed drying device,  
20 in which is an in the length direction of the rolls movable drying air blower or a corresponding device. With the drying fan air is blowed on the surface of the carpet. To the drying device belong a roll or rolls, on which the carpet is laid in a bowed  
25 position, whereat the drying is efficient. The air blower is connected with the transportation device described above or in a corresponding one by means of drying air hoses and it is moved in the same manner as the distributing unit and possibly simultaneously in the transverse direction of the carpet.  
30

In an other embodiment of the invention to the drying device belong rolls (not presented in the figures), between which the carpet is directed after  
35 the scavenging rolls. Between these rolls the carpet is pressed as dry as possible and the drying is continued afterwards by means of a drying air blower

or with a corresponding drying device. The drying rolls are pressed against each other along their whole length with pneumatically or hydraulically controlled pressing units, which are positioned  
5 on the surfaces of the rolls. As the pressing unit can be favourably a hose-like element stretching in the length direction of the rolls, which is pressed evenly against the roll, or to it might belong several at a distance from each other positioned on the  
10 surface of the roll located individual pressing units. Hereat these rolls are not pressed against each other from the ends only, but from the middle part as well. The carpet coming from between the rolls is mainly equally dry in its every spot and  
15 the drying is taking place evenly.

The invention is not limited to the favourable embodiments presented here, but it can vary within the frames of the claims.



## CLAIMS

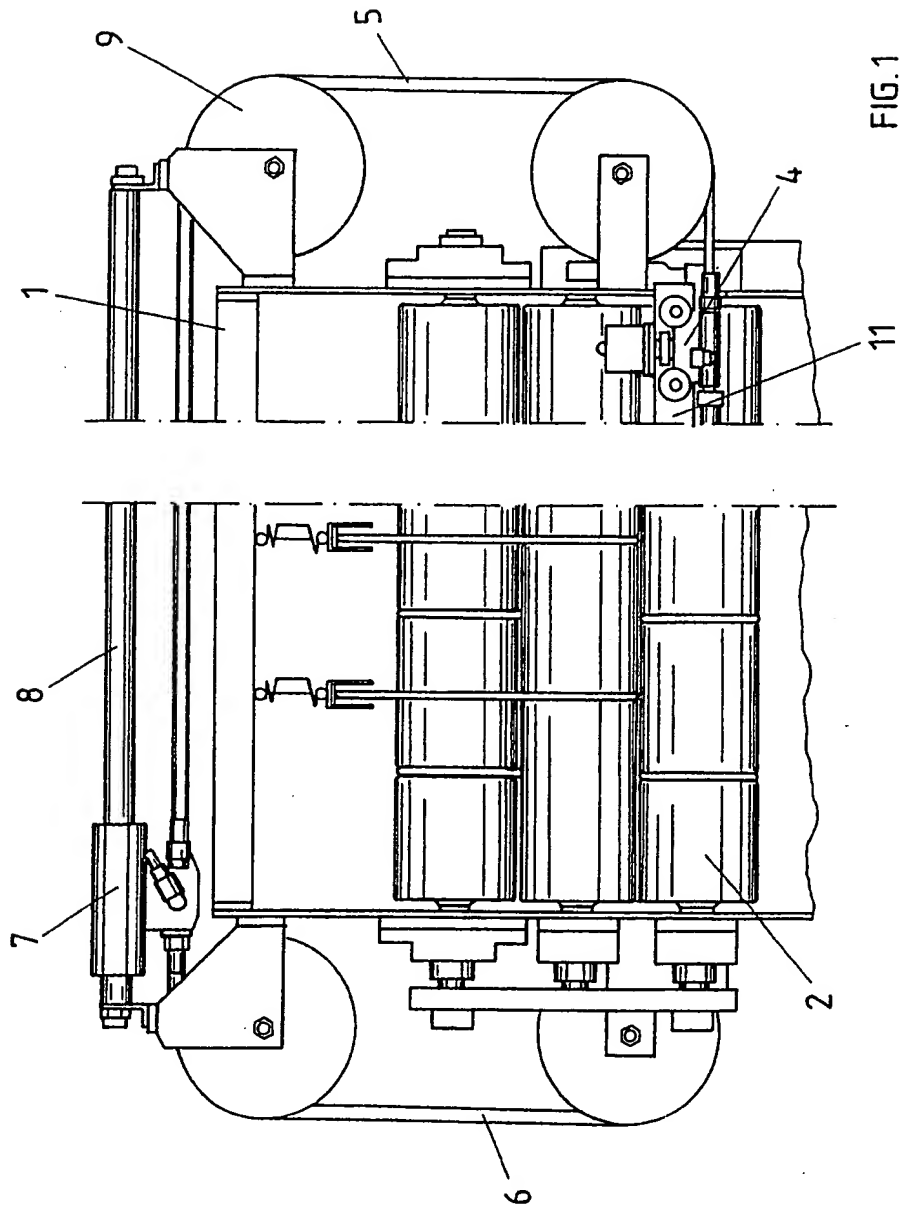
1. A machine for washing of carpets, to which machine belong a frame (1), inside the frame positioned rolls (2), supported by which the carpet (3) is arranged to be transferred inside the machine, an  
5 inside the machine positioned, in the length direction of the rolls movable distributing unit (4) for the detergent fluid and the scavenging agent for spraying of the detergent fluid and the scavenging agent on the surface of the carpet and with the distributing  
10 unit connected hoses (5, 6) of the detergent fluid and the scavenging agent, which are led out from the inside of the frame, c h a r a c t e r i z -  
e d in, that the hoses (5, 6) are on the outside of the frame from their one end fastened on a to  
15 the frame (1) fixed transportation device (7), which is arranged to transfer the hoses and with the intermediary of the hoses an on their other end connected distributing unit (4) in regard of the rolls.
- 20 2. A machine in accordance with the claim 1, c h a r a c t e r i z e d in, that the hoses are arranged to form an endless looping thus, that the hose (5) of the detergent fluid and the hose (6) for the scavenging agent are positioned on the differ-  
25 ent sides of the frame.
3. A machine in accordance with the claim 1 or 2, c h a r a c t e r i z e d in, that the transportation device (7) is fastened movably in a supporting  
30 bar (8) extending parallel with the rolls (2).
4. A machine in accordance with some of the claims 1-3, c h a r a c t e r i z e d in, that to the machine belong on the sides of the frame (1) positioned  
35 supporting elements (9), on which the hoses (5,6) are arranged to be supported.

5. A machine in accordance with some of the claims 1-4, to which belongs an on the side of the frame (1) positioned drying device, to which belong nozzles for blowing of air on the surface of the carpet, c h a r a c t e r i z e d in, that the nozzles are connected with air hoses to the transportation device (7) positioned outside the frame and that the nozzles are arranged to be transferred in the transverse direction of the carpet by means of the transportation device and the air hoses.

6. A machine in accordance with some of the claims 1-5, c h a r a c t e r i z e d in, that between the rolls have been placed at a distance from each other belts (13), supported by which the carpet is arranged to be transferred.

7. A machine in accordance with the claim 6, c h a r a c t e r i z e d in, that in the close neighbourhood of the scavenging rolls guiding devices (14) have been placed for changing of the position of the belts in regard of the carpet, and other guiding devices (15) for changing of the position of the belts back again.

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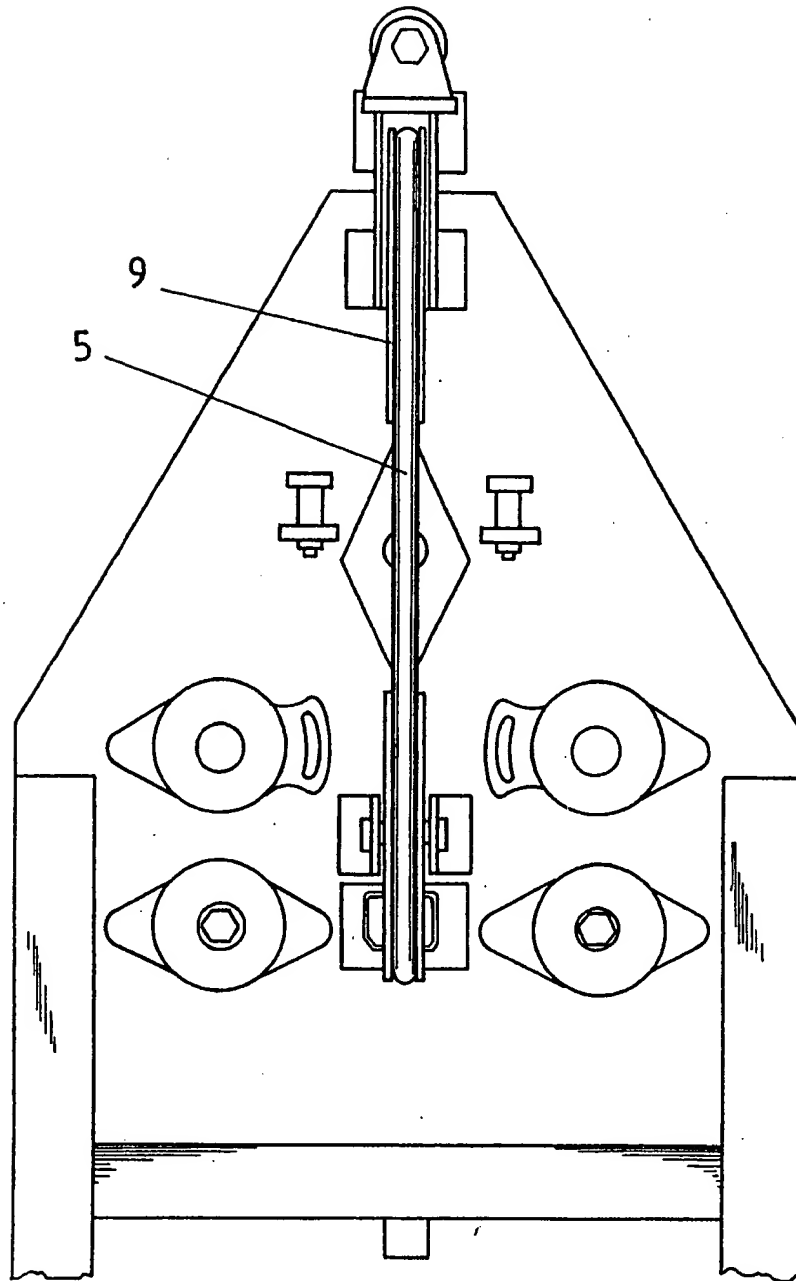


FIG. 2

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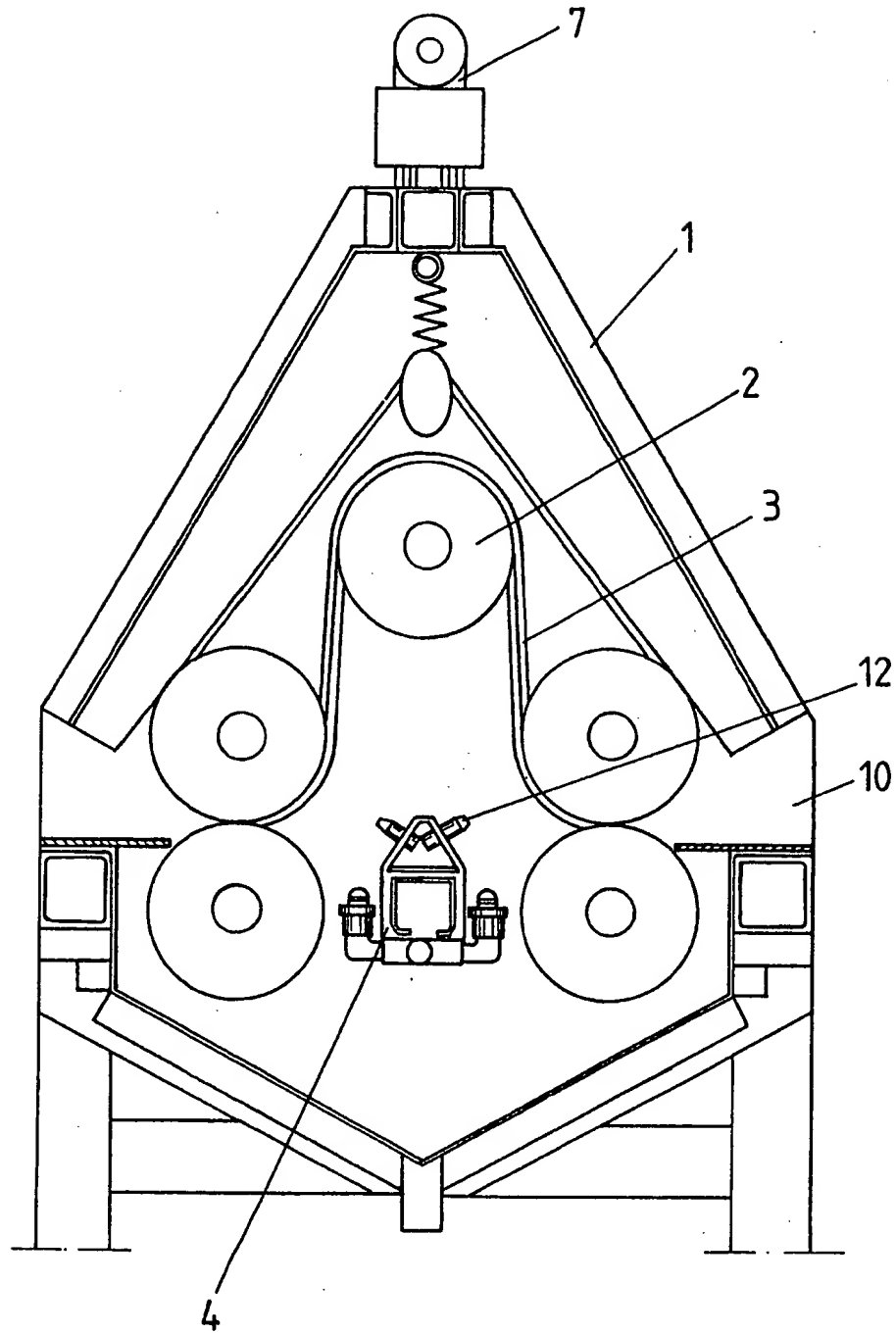


FIG. 3